

WHAT IS CLAIMED IS:

1. A differential pressure control valve of pilot-operated type for controlling a flow rate of fluid  
5 so that a differential pressure between inlet and outlet sides of the fluid may become equal to a differential pressure set by a value of electric current passed through a solenoid thereof,

characterized in that a diaphragm is arranged at  
10 a sliding portion on an outer periphery of a main valve piston for opening and closing a main valve element of a main valve, to completely prevent the fluid from leaking through the sliding portion.

15 2. The differential pressure control valve according to claim 1, characterized in that the diaphragm comprises a film shaped into annular form, the annular film having an inner peripheral edge portion clamped between the main valve piston and a fixing ring secured to  
20 the main valve piston, and an outer peripheral edge portion clamped between a body containing the main valve piston and a cylindrical member which is secured to the body and which slidably receives the main valve piston.

25 3. The differential pressure control valve according to claim 2, characterized in that the diaphragm comprises a polyimide film.

4. The differential pressure control valve according to claim 2, characterized in that the main valve piston is formed integrally with the main valve element as  
5 a one-piece body, and has an orifice connecting a space in which the fluid is introduced to a piston chamber located on one side thereof opposite the main valve element, pressure in the piston chamber being controlled by a pilot valve arranged between the piston chamber and a space  
10 located on a downstream side of the main valve, to thereby control valve lift of the main valve.

5. The differential pressure control valve according to claim 2, characterized in that the main valve  
15 piston is fixed to the main valve element by a shaft inserted through a valve hole of the main valve, and has an orifice connecting a space located on a downstream side of the main valve to a piston chamber located on one side thereof opposite the main valve element, pressure in the  
20 piston chamber being controlled by a pilot valve arranged between a space in which the fluid is introduced and the piston chamber, to thereby control valve lift of the main valve.